Assignment-2

Prime Numbers in Reverse Order

Write a program that takes two positive integers m and n as input. The program should print all the prime numbers between m and n (both inclusive) in reverse order using a while loop.

Count of Prime Numbers Divisible by a Given Number

Write a program that takes three positive integers m, n, and d as input. The program should count how many prime numbers between m and n (both inclusive) are divisible by d. Use a while loop to calculate this and print the result.

Difference Between the Largest and Smallest Prime Numbers in a Range

Write a program that takes two positive integers m and n as input. The program should calculate the difference between the largest and the smallest prime numbers between m and n (both inclusive) using a while loop and print the result. If no prime numbers exist in the range, print "No prime numbers found."

Check if Sum of Prime Numbers is Even or Odd

Write a program that takes two positive integers m and n as input. The program should calculate the sum of all prime numbers between m and n (both inclusive) using a while loop. Then, check if the sum is even or odd, and print the result.

Product of First N Prime Numbers

Write a program that takes a positive integer n as input. The program should calculate the product of the first n prime numbers using a while loop and print the result.

Sum of Prime Numbers at Odd Indices in a Range

Write a program that takes two positive integers m and n as input. The program should calculate the sum of prime numbers located at odd positions between m and n (both inclusive) when counting primes sequentially. Use a while loop to solve the problem and print the result.

Sum of Alternating Prime Numbers in a Range

Write a program that takes two positive integers m and n as input. The program should calculate the sum of every second prime number between m and n (both inclusive) using a while loop and print the result.

Sum of Alternating Prime Numbers in a Range

Write a program that takes two positive integers m and n as input. The program should calculate the sum of every second prime number between m and n (both inclusive) using a while loop and print the result.

Fibonacci Sequence Up to a Given Number

Write a program that takes a positive integer n as input. The program should print the Fibonacci sequence up to n using a while loop. The Fibonacci sequence starts with 0 and 1, and each subsequent number is the sum of the previous two.

Sum of Leap Years in a Range

Write a program that takes two positive integers startYear and endYear as input. The program should calculate the sum of all leap years between startYear and endYear (both inclusive) using a while loop and print the result.

Generate Multiplication Table

Write a program that takes a positive integer n as input. The program should generate and print the multiplication table for n using a while loop up to 10.

Prime Factorization of a Number

Write a program that takes a positive integer n as input. The program should print the prime factorization of n using a while loop.

Find the GCD of Two Numbers

Write a program that takes two positive integers a and b as input. The program should calculate the greatest common divisor (GCD) of a and b using a while loop and print the result.

Generate the Sequence of Harmonic Numbers

Write a program that takes a positive integer n as input. The program should generate and print the first n harmonic numbers using a while loop. The n-th harmonic number is defined as H(n)=1+12+13+...+1nH(n) = 1 + \frac{1}{2} + \frac{1}{3} + ... + \frac{1}{n} H(n)=1+21+31+...+n1.

Generate Triangular Numbers

Write a program that takes a positive integer n as input. The program should generate and print the first n triangular numbers (1, 3, 6, 10, ...) using a while loop.

Generate the Factorial Sequence

Write a program that takes a positive integer n as input. The program should generate and print the factorial sequence (1!, 2!, 3!, ..., n!) using a while loop.

Generate Geometric Sequence

Write a program that takes three integers a, r, and n as input, where a is the first term, r is the common ratio, and n is the number of terms. The program should generate and print the geometric sequence using a while loop.
a: 2 r: 3 n: 5 2,
6, 18, 54, 162

Generate Arithmetic Sequence

Write a program that takes three integers a, d, and n as input, where a is the first term, d is the common difference, and n is the number of terms. The program should generate and print the arithmetic sequence using a while loop.
a: 3 d: 2 n: 5
3, 5, 7, 9, 11